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Knowledge levels of different speciality clinicians involved in the follow-up and treatment of developmental dysplasia of hip: misinformation known correctly

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ABSTRACT

Aims: In this article, it is aimed to measure the level of knowledge of intern physicians, general practitioners, pediatric health and diseases research assistants and specialist physicians about developmental dysplasia of the hip and to increase their awareness of the deficiencies identified in the relevant physician group.

Methods: Our study population consisted of general practitioners, intern physicians, pediatric health and diseases research assistants and specialist physicians. A questionnaire form about developmental dysplasia of the hip (DDH) was prepared. This questionnaire form was delivered to volunteer physicians digitally and they were asked to answer it. The questionnaires were collected digitally. The answers to the survey questions were analyzed and graphs showing the percentage distribution of the answers were created.

Results: In our study, a total of 168 volunteer physicians, including 76 intern physicians, 32 general practitioners, 40 pediatric research assistants and 20 specialists, were reached. Among the physicians who participated in the study, 45.2% were intern physicians who had not yet started their professional life. 45.1% of the physicians participating in the study were physicians with more than 1 year of professional experience. 95.2% of the participants stated that they received an orthopedics and traumatology internship during their undergraduate medical school education. 54.8% of the participants in the study were encountered with patients diagnosed with DDH. Physicians gave correct answers to the questions about DDH at rates ranging from 92.9% to 51.2%.

Conclusion: Our study has shown that there are some deficiencies in the level of knowledge of physicians who deal with the diagnosis and treatment of the patient population diagnosed with DDH. In this regard, our medical faculties and the ministry of health have important duties in medical faculties and in the training on DDH that will be given at the professional level.

Keywords: Hip, dysplasia, knowledge, questionnaire, physician

INTRODUCTION

Developmental dysplasia of the hip (DDH) joint is a dynamic disease in which the structures that make up the hip joint are normal in the intrauterine period, but subsequently show structural deterioration due to various reasons.[1,2] Over time, pathology in the soft tissues and bone tissues of the hip joint can lead to different levels of deformity in the hip joint. Since the pathology is usually due to underdevelopment of the acetabulum and develops over time, DDH has been used in the new terminology instead of congenital dislocation of the hip.[3] Due to this characteristic of the disease, the level of knowledge of general practitioners and relevant specialist physicians who follow up babies who are especially at risk in the neonatal period about DDH is important for the proper functioning of the screening program and the access of diagnosed patients to the correct treatment.

In the world, the general incidence of DDH varies between 0.1-10%. The incidence in Turkiye is estimated to be approximately 5-15 per 1,000 live births.[4] Breech presentation of the baby during normal delivery, female gender, multiple pregnancies, low amniotic fluid, first birth, and positive family history increase the risk of DDH.[5,6] In addition to birth-related risks, some postnatal malpractices also contribute to the development of DDH. One of these is swaddling the baby with traditional methods or using double diapers in risky babies. Studies have shown that swaddling and the use of double diapers increase the risk of developmental hip

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dysplasia.[6,7] Physicians who follow up children in the neonatal period and take an active role in DDH screening should be informed about these risk factors and wrong practices.

Hip ultrasonography is the gold standard diagnostic method for the diagnosis of DDH in the first 6 months of neonatal screening. The aim of the treatment of diagnosed babies is to provide anatomical reduction of the hip joint as soon as possible and to ensure the normal development of the hip joint by maintaining it. Providing the patient with a lifelong functional hip joint by eliminating the permanent damages that may occur is the most important gain of treatment in the long term. The later the diagnosis, the greater the complexity of the interventions and the risk of complications, and the lower the chance of success.

In patients diagnosed in the first 6 months of life, the first treatment option is to bring the hip joint into a reduced position with different bandages or orthoses.[8,9] The most commonly used method to maintain reduction in this period is the use of Pavlik bandage.[10] In hips that cannot be reduced using Pavlik bandage or in hips that show insufficient development during treatment, the hips should be reduced under general anesthesia and a pelvipedal cast should be applied covering the trunk and legs.[10] In the patient group in whom the treatment is not terminated in the following period and the need for treatment continues, osteotomy applications are required together with capsulorrhaphy methods that provide anatomical reduction of the hip.[11,12] If developmental dysplasia of the hip is left untreated, permanent deformities and osteoarthritis may develop.

A national screening program is essential for early detection and treatment of developmental dysplasia of the hip. Early diagnosis allows the use of conservative methods, which are simpler and less costly. As such, early detection and proper management at the primary care center are key to prevent further complications of the disease.[13] General practitioners, interns and pediatricians also play an important role in national screening and early diagnosis. In order to minimize possible wrong attitudes in practices related to DDH in primary health care centers, continuous in-service trainings on knowledge, attitudes and practices for DDH management should be provided.[14] Some other studies have reported that more than 50% of healthcare workers, including doctors, nurses and medical students, have very low knowledge about DDH.[4,15-17]

In this study, our aim was to determine the level of knowledge of physicians interested in the diagnosis and treatment of DDH and to find the frequency of incorrect practices and to draw attention to these practices.

METHODS

For this study, an application was made to Kırıkkale University Non-interventional Researches Ethics Committee (Date: 17.04.2024, Decision No: 2024.03.16). All procedures were carried out in accordance with the ethical rules and the principles of the Declaration of Helsinki. The questionnaire study consisting of 17 questions prepared to measure the level of knowledge of the participants about DDH and to question their clinical preferences is given in **Table**. Intern physicians, general practitioners, pediatrician research assistants and specialist physicians were included in the questionnaire form prepared in our study. Participants were included in our study on a voluntary basis. The correct answers to the questions are indicated in red color in the **Table**. The answers to some questions could not be classified as correct or incorrect and allowed the responding clinician to express his/her own preferences and orientations regarding the diagnosis and treatment of DDH. No question pattern was used to reveal the identity information, institution of employment, age and gender of the participants and this information was not recorded. The participants were reached via e-mail in digital environment and the answers given by the participants were recorded digitally with the questionnaire prepared by us on Google form. The answers to the survey questions were analyzed and graphs showing the percentage distribution of the answers were created.

RESULTS

A total of 168 physicians volunteered to participate in the study, including 76 intern physicians, 32 general practitioners, 40 pediatric research assistants and 20 specialists (**Figure 1**). Of the physicians who participated in the study, 45.2% were intern physicians who had not yet started their professional life, while 9.7% were physicians in their first year of professional life. Among the physicians who participated in the study, 45.1% had more than 1 year of professional experience.

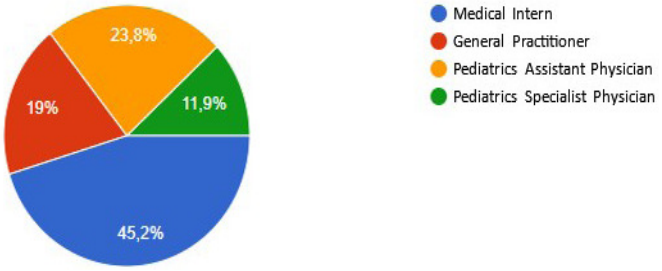

Figure 1. Distribution of physicians who participated in the questionnaire according to branches

95.2% of the participants stated that they received an orthopedics and traumatology internship during their undergraduate medical school education, while 4.8% stated that they did not receive an orthopedics and traumatology internship. Of the participants, 54.8% stated that they had encountered a patient diagnosed with DDH in their professional life, while 45.2% stated that they had not encountered a patient diagnosed with DDH in their professional life.

The distribution of the answers given by the physicians who participated in the survey to the questions about DDH disease is given collectively in **Figure 2**. When the distribution of the answers given by the physicians who participated in the survey to the questions about DDH disease is examined, 59.5% of the physicians who participated in the survey answered the question "Do you think the sentence 'Older mothers are more likely to have babies with DDH?' is correct with the answer no, while 40.5% gave the wrong answer with the answer yes. To the question "Do you think the statement 'All diseased babies are born with dislocated hips' is true?", 92.9% of the physicians who participated in the survey responded correctly with the answer no, while 7.1% responded incorrectly with the answer yes. While 78.6% of the physicians who participated in the survey responded correctly with the answer no, 21.4% responded incorrectly with the answer yes to the question

Table. Knowledge assessment questionnaire on DDH
1. Describe your specialty.
Medical intern
General practitioner
Pediatrics assistant physician
Pediatrics specialist physician
2. How many years are you in your profession?
3. Did you take orthopedics and traumatology internship during your undergraduate education at the faculty of medicine?
Yes
No
4. Have you encountered a patient diagnosed with DDH in your daily professional life?
Yes
No
5. Do you think the statement "Older mothers are more likely to have a baby with DDH" is correct?
Yes
No
6. Do you think the statement "All diseased babies are born with a dislocated hip" is correct?
Yes
No
7. Do you think the statement "DDH is more common in male babies" is correct?
Yes
No
8. Do you think the statement "Polyhydramnios history during pregnancy is among the risk factors of DDH" is correct?
Yes
No
9. Do you think the statement "Keeping the hip joints of babies in a certain position with swaddling from birth stimulates the normal development of the hip joint" is correct?
Yes
No
10. How many newborns with DDH are born every year in our country?
500-1000/year
5-8 thousand/year
15-18 thousand/year
50-100 thousand/year
Unpredictable
11. Which statement of the following is most accurate regarding the diagnosis of DDH?
The most reliable finding on physical examination is pili asymmetry
In patients diagnosed with DDH, treatment follow-up is performed with USG control until the 18th month.
Computed tomography of the hip can be used to replace plain hip radiographs.
In the national screening, babies are screened for DDH between the 4th and 6th weeks.
MRI is the most effective diagnostic tool.
12. Do you think the statement "Double diaper practices are an alternative method, especially in patients who have not considered Pavlik bandage treatment or who cannot adapt" is correct?
Yes
No
13. Which of the following is the reason for the approach, "Ideally, treatment of DDH should be performed at the earliest age"?
As the baby gets older, walking age is delayed due to plaster treatment.
As the baby gets older, the radiation received during the treatment process increases.
As the baby gets older, the cost of treatment increases.
As the baby gets older, the deterioration in pathologic anatomy increases.
As the baby gets older, the clinical findings become fainter and the diagnosis becomes more difficult.
14. Do you think the sentence "All hips that are not normal on USG in the first 3 months should be treated" is correct?
Yes
No
15. Which method do you think should be preferred to minimize the individual and societal (socioeconomic) effects of DDH?
Informing families.
Informing health personnel.
Hip USG in all newborns (universal screening).
Hip USG in all babies at risk for DDH (selective screening).
Double diapers for newborns with at least 2 risk factors.
16. In your daily professional life, which treatment option do you find most beneficial in the treatment of a patient diagnosed with DDH?
Swaddling
Double diaper
Pavlik bandage
Tubingen orthosis
Pelvipedal casting
17. How do you plan the treatment of patients diagnosed with DDH in your daily professional life?
I disagree with the decision at any stage of treatment
I refer the patient to the neonatal outpatient clinic for treatment
I refer the patient to the orthopedics and traumatology outpatient clinic for treatment
I undertake the entire non-surgical treatment process myself

DDH: Developmental dysplasia of the hip

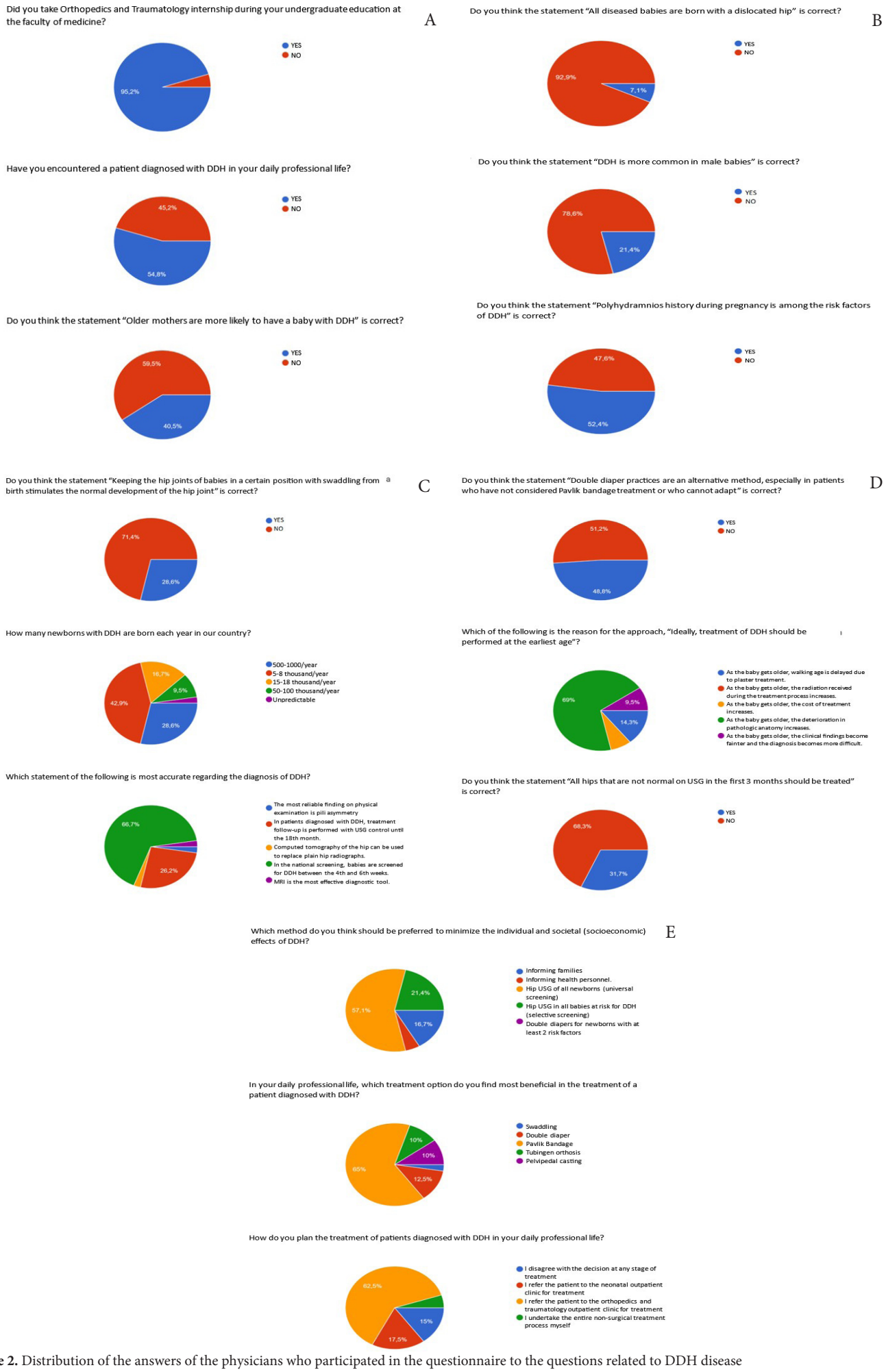
A
Did you take Orthopedics and Traumatology internship during your undergraduate education at the faculty of medicine?
YES
NO
95,2%
Have you encountered a patient diagnosed with DDH in your daily professional life?
YES
NO
45,2%
54,8%
Do you think the statement "Older mothers are more likely to have a baby with DDH" is correct?
YES
NO
59,5%
40,5%
B
Do you think the statement "All diseased babies are born with a dislocated hip" is correct?
YES
NO
92,9%
7,1%
Do you think the statement "DDH is more common in male babies" is correct?
YES
NO
78,6%
21,4%
Do you think the statement "Polyhydramnios history during pregnancy is among the risk factors of DDH" is correct?
YES
NO
47,6%
52,4%
C
Do you think the statement "Keeping the hip joints of babies in a certain position with swaddling from birth stimulates the normal development of the hip joint" is correct?
YES
NO
71,4%
28,6%
How many newborns with DDH are born each year in our country?
500-1000/year
5-8 thousand/year
15-18 thousand/year
50-100 thousand/year
Unpredictable
16,7%
9,5%
42,9%
28,6%
Which statement of the following is most accurate regarding the diagnosis of DDH?
The most reliable finding on physical examination is pili asymmetry
In patients diagnosed with DDH, treatment follow-up is performed with USG control until the 18th month.
Computed tomography of the hip can be used to replace plain hip radiographs.
In the national screening, babies are screened for DDH between the 4th and 6th weeks.
MRI is the most effective diagnostic tool.
66,7%
26,2%
D
Do you think the statement "Double diaper practices are an alternative method, especially in patients who have not considered Pavlik bandage treatment or who cannot adapt" is correct?
YES
NO
51,2%
48,8%
Which of the following is the reason for the approach, "Ideally, treatment of DDH should be performed at the earliest age"?
As the baby gets older, walking age is delayed due to plaster treatment.
As the baby gets older, the radiation received during the treatment process increases.
As the baby gets older, the cost of treatment increases.
As the baby gets older, the deterioration in pathologic anatomy increases.
As the baby gets older, the clinical findings become fainter and the diagnosis becomes more difficult.
69%
9,5%
14,3%
Do you think the statement "All hips that are not normal on USG in the first 3 months should be treated" is correct?
YES
NO
68,3%
31,7%
E
Which method do you think should be preferred to minimize the individual and societal (socioeconomic) effects of DDH?
Informing families
Informing health personnel.
Hip USG of all newborns (universal screening)
Hip USG in all babies at risk for DDH (selective screening)
Double diapers for newborns with at least 2 risk factors
57,1%
21,4%
16,7%
In your daily professional life, which treatment option do you find most beneficial in the treatment of a patient diagnosed with DDH?
Swaddling
Double diaper
Pavlik Bandage
Tubingen orthosis
Pelvipedal casting
65%
10%
10%
12,5%
How do you plan the treatment of patients diagnosed with DDH in your daily professional life?
I disagree with the decision at any stage of treatment
I refer the patient to the neonatal outpatient clinic for treatment
I refer the patient to the orthopedics and traumatology outpatient clinic for treatment
I undertake the entire non-surgical treatment process myself
62,5%
15%
17,5%

Figure 2. Distribution of the answers of the physicians who participated in the questionnaire to the questions related to DDH disease

DDH: Developmental dysplasia of the hip

"Do you think the sentence 'DDH disease is more common in male babies' is correct?". To the question "Do you think the sentence 'Polyhydramnios history during pregnancy is among the risk factors of DDH' is correct?", 52.4% of the physicians who participated in the survey answered correctly with yes, while 47.6% answered incorrectly with no. While 71.4% of the physicians who participated in the survey answered the question "Do you think the sentence 'Keeping the hip joints of babies in a certain position with swaddling from birth stimulates the normal development of the hip joint.' is correct, 71.4% of them answered correctly with the answer no, while 28.6% of them answered incorrectly with the answer yes.

To the question "How many newborns with DDH are born every year in our country?", 42.9% of the physicians who participated in the survey answered 5-8 thousand/year, 28.6% answered 500-1000 thousand/year, 16.7% answered 15-18 thousand/year, 9.5% answered 50-100 thousand/year, and 2.4% answered unpredictable. With this result, only 16.7% of physicians correctly knew the expected incidence of patients diagnosed with DDH in our country. In response to the question "Which of the following is the most accurate regarding the diagnosis of DDH?", 66.7% of the physicians who participated in the survey answered correctly with the answer "Babies are screened for DDH at 4-6 weeks in national screening."

To the question "Do you think the sentence ''Double diaper applications are an alternative method, especially in patients who have not considered pavlik bandage treatment or who cannot adapt?" is correct? 51.2% of the physicians who participated in the survey responded correctly with the answer no, while 48.8% responded incorrectly with the answer yes. 69% of the physicians who participated in the survey answered the question "Which of the following is the rationale for the approach "Ideally, the treatment of DDH should be performed at the earliest age?" to the question "As the age of the baby increases, the deterioration in pathologic anatomy increases." While 68.3% of the physicians who participated in the survey gave the correct answer no, 31.7% gave the wrong answer yes to the question "Do you think the sentence 'All hips that are not normal on USG in the first 3 months should be treated' is correct?

57.1% of the physicians who participated in the questionnaire responded to the question sentence "Which method should be preferred to minimize the individual and social (socioeconomic) effects of DDH?" as "Performing hip USG in all newborns (universal screening)" and recommended universal screening. The physicians who participated in the study answered the question "Which treatment option do you find most beneficial in the treatment of patients diagnosed with DDH in your daily professional life?" with pavlic bandage application by 65%. To the question sentence "How do you plan the treatment of patients diagnosed with DDH in your daily professional life?" 62.5% of the physicians who participated in the study answered "I refer the patient to the orthopedics and traumatology outpatient clinic for treatment."

DISCUSSION

We think that we obtained a quantitatively homogeneous distribution in the physician group participating in the study. It was seen that 95.2% of the physicians participating in the study received orthopedics and traumatology internship in their undergraduate medical school education. However, 45.2% of our participants stated that they had not encountered a patient diagnosed with DDH in their professional life. The group with the highest rate of not encountering a patient diagnosed with DDH was the general practitioner group with a rate of 87.5%. In the intern physician group, this rate was 65%. Pediatric health and diseases research assistant physicians and specialist physicians stated that they encountered a patient population diagnosed with DDH at a rate of 100%. In the light of these results, it can be inferred that it is inevitable to encounter GKD disease as the level of specialization increases or as professional experience increases. In addition, the low rate of encounter with patients diagnosed with DDH in our physician group with less than one year of professional experience, which we can describe as the new generation physician group, can also be interpreted as a result of the national screening program application that started in our country in 2013. Due to the decreasing frequency of patients diagnosed with DDH in daily clinical and outpatient clinic practices, we think that theoretical courses on the diagnosis, treatment and follow-up of DDH should be increased for intern physicians during orthopedics and traumatology internship and pediatrics internship in the undergraduate education of medical faculty.

According to our observations in the patient population diagnosed with DDH that we encounter as Kırıkkale University Faculty of Medicine Department of Orthopedics and Traumatology, the biggest problem related to DDH is the incorrect practices that are known to be correct in the society. It is observed that these practices are sometimes recommended to families by the physicians responsible for the treatment and follow-up of DDH. Again, based on our observations, the most common misleading recommendations among these practices are swaddling and the use of double diapers. We aimed to test the extent to which our physicians were aware of these misapplications in questions 9 and 12 of our questionnaire study. 71.4% correct response to the misapplication of swaddling in question 9 of our questionnaire study showed that our physicians were largely aware that swaddling is a risk factor. However, the 48.8% incorrect response to the double diaper misapplication in question 12 of our questionnaire study showed that there is a high level of misinformation in the physician group who will direct the diagnosis and treatment on this issue together with the society and that the level of knowledge on this subject should be increased with undergraduate and postgraduate in-professional trainings.

In question 6 of our questionnaire study, we wanted to question the knowledge that DDH is not a congenital disease and that it is a dynamic process that starts in the intrauterine period and continues in the postnatal period. 92.9% of the physicians who participated in the study stated that the sentence "All diseased babies are born with dislocated hips" contains a false statement. In questions 7 and 8 of our questionnaire study, we aimed to measure the level of knowledge of our physicians about the risk factors of DDH. The percentage of correct answers was high in both questions. However, the 47.6% incorrect answer percentage in question 8, in which we questioned the risk factor of polyhydramnios, revealed that the knowledge level of our physicians should be increased in terms of the risk factors of DDH. In addition, it is

noteworthy that the highest percentage of incorrect answers in the 8th question of the questionnaire belonged to pediatric health and diseases specialist physicians with 80% and pediatric health and diseases research assistant physicians with 70%. We think that the knowledge level of pediatricians who question risk factors during initial examinations in neonatal outpatient clinics, especially in daily practice, should be increased with in-professional trainings.

With the 13th, 14th and 15th questions of our questionnaire study, we aimed to emphasize the importance of screening and early treatment of DDH and to measure the level of knowledge of our physicians on this subject. The high rate of correct answers to these questions showed that the level of knowledge of our physicians on this subject was sufficient. However, we think that the screening program implemented in our country should be explained in more detail to physician groups from all branches in order to reduce the rate of incorrect answers to lower rates. Considering that the universal screening program started in our country in 2013, we assume that our level of knowledge on this subject will increase even more in the following years.

In the 17th question of our questionnaire, we wanted to inquire to what extent the physicians concerned took responsibility for the treatment of patients diagnosed with DDH during DDH screening. In response to the question "How do you plan the treatment of patients diagnosed with DDH in your daily professional life?" 62.5% of the physicians who participated in the study answered "I refer the patient to the orthopedics and traumatology outpatient clinic for treatment". These results show that most of the physicians do not take an active role in starting conservative treatments, which constitute most of the treatment and the first step.

Limitations

There are some limitations in our study. We did not use any question pattern that would reveal the identity information of the participants, the institution they work for, their age and gender, and no information was collected. Participants were reached digitally and we did not have the chance to observe the participants while marking the questionnaire. For this reason, we were not able to determine the conditions under which the participants completed the survey and whether they reached the correct answers to the questions by using different sources. We think that this situation decreases the reliability rate of the survey. Orthopedic residents and specialists who play an active role in the treatment process of DDH, especially after the diagnosis, were not included in our study.

CONCLUSION

The diagnosis, treatment and follow-up of DDH is a process carried out jointly by multiple physician groups. Starting from the first examination of the patients in the neonatal period until the surgical intervention if necessary, the physician groups who will encounter patients diagnosed with DDH and who will organize the treatment should have sufficient knowledge about DDH. It is recommended that the knowledge deficiencies in different physician groups that emerged as a result of our study should be eliminated through undergraduate education and on-the-job trainings on related subjects. In addition, when the rate of not encountering patients diagnosed with DDH is considered, the result shows that practical applications about DDH should be included more in pediatric health and diseases internship and orthopedics and traumatology internship in the undergraduate education system. At this point, our medical faculty institutions that provide basic medical education are of great importance. We think that we need multidisciplinary studies and symposiums to be carried out in our educational institutions under the leadership of the Ministry of Health and our medical faculties.

ETHICAL DECLARATIONS

Ethics Committee Approval

The study was carried out with the permission of the Kırıkkale University Non-interventional Researches Ethics Committee (Date: 17.04.2024, Decision No: 2024.03.16).

Informed Consent

All participants signed and free and informed consent form in this study.

Referee Evaluation Process

Externally peer-reviewed.

Conflict of Interest Statement

The authors have no conflicts of interest to declare.

Financial Disclosure

The authors declared that this study has received no financial support.

Author Contributions

All of the authors declare that they have all participated in the design, execution, and analysis of the paper, and that they have approved the final version.

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